

PTO/SB/21 (08-03)
Approved for use through 08/30/2003. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Pa	perwork Re	duction Act of 1995	no persor	ns are required to respond to a colle				s a valid OMB control number.
			Application Number	10/708	10/708,602			
TRANSMITTAL FORM (to be used for all correspondence after initial filing)			Filing Date	03/14/	03/14/2004 Sea-Huang Lee			
			First Named Inventor	Sea-H				
			Art Unit					
				Examiner Name				
Total Number of	f Pages in 1	This Submission	3	Attorney Docket Number	ОТМР	P0065USA		
			ENC	LOSURES (Check all ti	hat apply	1)		
	Fee Transmittal Form Fee Transmittal Form Fee Attached Amendment/Reply After Final Affidavits/declaration(s) Extension of Time Request Express Abandonment Request			Drawing(s) Licensing-related Papers Petition Petition to Convert to a Provisional Application Power of Attorney, Revocation Change of Correspondence Addres Terminal Disclaimer Request for Refund CD, Number of CD(s)		to Ap	er Allowance communication Fechnology Center (TC) Deal Communication to Board	
Amendm A A B A Extension						of Appeals and Interferences Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) Proprietary Information Status Letter Other Enclosure(s) (please Identify below):		nmunication to TC ce, Brief, Reply Brief) Information er esure(s) (please
Certified Documer Respons Incomple	Copy of Part(s) e to Missiste Applicates	Priority ng Parts/ ation to Missing Parts FR 1.52 or 1.53	Rema					
		SIGNA	TURE	OF APPLICANT, ATTOR	RNEY,	OR AGEN	T	
Firm or Individual name Signature Date	Winst	on Hsu, Reg.	No.: 41	57200 G	zss			
		C	ERTIFI	CATE OF TRANSMISSION	ON/MA	ILING		
	e as first c	rrespondence is t	peing facs	simile transmitted to the USPTC ddressed to: Commissioner for	or depo	sited with the		
Typed or printed	name							
Signature							Date	

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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APR 0 9 2004 25

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
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FEE TRANSMITTAL for FY 2004

(\$) 0.00

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT

Complete if Known		
Application Number	10/708,602	
Filing Date	03/14/2004	
First Named Inventor	Sea-Huang Lee	
Examiner Name		
Art Unit		
Attorney Docket No.	OTMP0065USA	

METHOD OF PAYMENT (check all that apply)	FEE CALCULATION (continued)			
Check Credit card Money Other None 3. Al	3. ADDITIONAL FEES			
Deposit Account:	Entity Small Entity			
Deposit Account 50-0801	rec : und			
Number 1051 Deposit 1052	130 2051 65 Surcharge - late filing fee or oath			
Account North America International Patent Office	50 2052 25 Surcharge - late provisional filing fee or cover sheet			
Name The Director is authorized to: (check all that apply) 1053	130 1053 130 Non-English specification			
Charge fee(s) indicated below Credit any overpayments	2,520 1812 2,520 For filing a request for ex parte reexamination			
Charge any additional fee(s) or any underpayment of fee(s)	920* 1804 920* Requesting publication of SIR prior to Examiner action			
Charge fee(s) indicated below, except for the filing fee 1805	1,840* 1805 1,840* Requesting publication of SIR after			
to the above-identified deposit account.	Examiner action 0.00			
FEE CALCULATION 1251	110 2251 55 Extension for reply within first month			
1. BASIC FILING FEE	420 2252 210 Extension for reply within second month			
Large Entity Small Entity Fee Fee Fee Fee Description Fee Paid 1254	950 2253 475 Extension for reply within third month			
Code (\$) Code (\$)				
7001 770 2001 303 Others ming ice	2,010 2255 1,005 Extension for reply within fifth month			
1002 340 2002 170 Design filing fee 1401	330 2401 165 Notice of Appeal			
1003 530 2003 265 Plant filing fee 1402	330 2402 165 Filing a brief in support of an appeal			
1004 770 2004 385 Reissue filing fee 1403	290 2403 145 Request for oral hearing			
	1,510 1451 1,510 Petition to institute a public use proceeding			
SUBTOTAL (1) (\$) 0.00	110 2452 55 Petition to revive - unavoidable			
	1,330 2453 665 Petition to revive - unintentional			
Fee from1501	· · · · · · · · · · · · · · · · · · ·			
Total Claims	480 2502 240 Design issue fee			
Independent 23 - 1503	640 2503 320 Plant issue fee			
Multiple Dependent	130 1460 130 Petitions to the Commissioner			
1807	50 1807 50 Processing fee under 37 CFR 1.17(q)			
Large Entity Small Entity 1806 Fee Fee Fee Fee Description	180 1806 180 Submission of Information Disclosure Stmt			
Code (\$) Code (\$) 8021	40 8021 40 Recording each patent assignment per property (times number of properties)			
1202 18 2202 9 Claims in excess of 20 1201 86 2201 43 Independent claims in excess of 3	770 2809 385 Filing a submission after final rejection (37 CFR 1.129(a))			
1203 290 2203 145 Multiple dependent claim, if not paid 1810	770 2810 385 For each additional invention to be			
1204 86 2204 43 ** Reissue independent claims	examined (37 CFR 1.129(b))			
over original patent 1801	770 2801 385 Request for Continued Examination (RCE)			
1205 18 2205 9 ** Reissue claims in excess of 20 1802 and over original patent	900 1802 900 Request for expedited examination of a design application			
	fee (specify)			
**or number previously paid, if greater; For Reissues, see above	uced by Basic Filing Fee Paid SUBTOTAL (3) (\$) 0.00			
SUBMITTED BY	(Complete (if applicable))			

SUBMITTED BY (Complete (if applicable))

Name (Print/Type) Winston Hsu

Registration No. (Attorney/Agent) 41,526

Telephone 886289237350

Signature Date

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PTO/SB/02B (11-00)

Approved for use through 10/31/2002. OMB 0651-0032

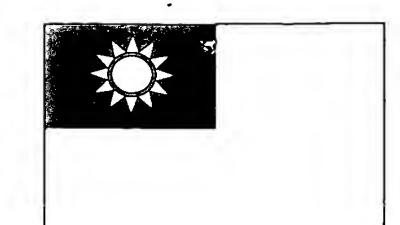
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

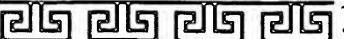
the Page Work Preduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

DECLARATION — Supplemental Priority Data Sheet

Additional foreign app	lications:			
Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES NO
092205258	Taiwan R.O.C	03/28/2003		
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Burden Hour Statement: This form is estimated to take 21 minutes to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.







中華民國經濟部智慧財產局

INTELLECTUAL PROPERTY OFFICE MINISTRY OF ECONOMIC AFFAIRS REPUBLIC OF CHINA

茲證明所附文件,係本局存檔中原申請案的副本,正確無訛,其申請資料如下:

This is to certify that annexed is a true copy from the records of this office of the application as originally filed which is identified hereunder:

申 請 日: 西元 2003 年 03 月 28 日 Application Date

申 請 案 號: 092205258

Application No.

申 請 人:中強光電股份有限公司

Applicant(s)

局 Director General



發文日期: 西元 2004 年 1 月 8 日

Issue Date

發文字號: 09320028790

Serial No.

申請日期:	IPC分類	
申請案號:		

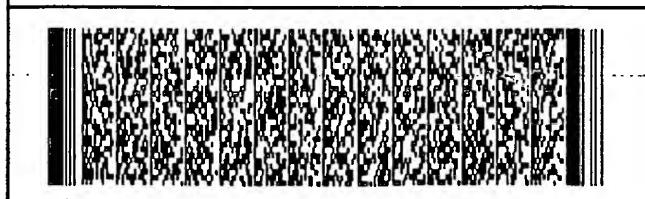
(以上各欄	由本局填電	新型專利說明書
	中文	投影光學模組
新型名稱	英 文	Projection Optical Module
	姓 名 (中文)	1. 李錫璜
-	姓 名 (英文)	1. Lee Sea-Huang
創作人 (共1人)	國籍(中英文)	1. 中華民國 TW
	住居所(中文)	1. 新竹科學工業園區新竹市力行路11號
	住居所(英文)	1.No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.
	名稱或 姓 名 (中文)	1. 中強光電股份有限公司
	名稱或 姓 名 (英文)	1.Coretronic Corporation
三、	國 籍 (中英文)	1. 中華民國
申請人 (共1人)	住居所 (營業所) (中 文)	
	住居所 (營業所) (英 文)	1. No 11, Li Hsing Rd, Science-Based Industrial Park, Hsinchu, Taiwan, R.O.C.
	代表人(中文)	1. 張威儀
	代表人 (英文)	1. Wade Chang

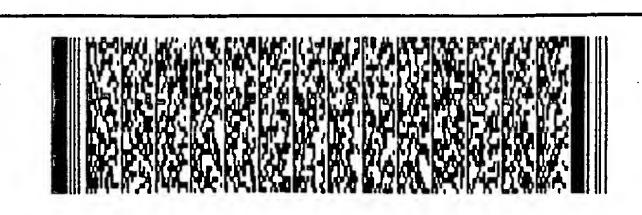


四、中文創作摘要 (創作名稱:投影光學模組)

陸、英文創作摘要 (創作名稱: Projection Optical Module)。

A projection optical module comprises a front optical module having a light valve and a projection lens, a back optical module having a lamp set, an integrated rod and a color wheel, and an adjusting element. A one end of the adjusting element is pivoted to the front optical module, and the other end is screwed to the back optical module. The adjusting element is rotated around the optical axis to adjust the relative position between the front and back optical module. Therefore, the light beams from the color



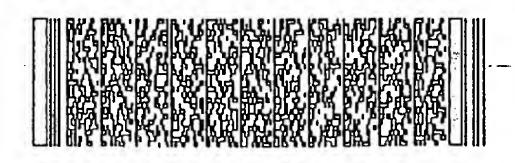


四、中文創作摘要 (創作名稱:投影光學模組)



陸、英文創作摘要 (創作名稱: Projection Optical Module)

wheel can be clearly projected onto the light valve, and it can simplify the process for electric signals and avoid the loss of brightness



四、中文創作摘要 (創作名稱:投影光學模組)

伍、(一)、本案代表圖為:第__3__ 圖

(二)、本案代表圖之元件代表符號簡單說明:

投影光學模組 20

前光學模組 21

調整件

後光學模組 23

陸、英文創作摘要 (創作名稱: Projection Optical Module)



一、本案已向			
國家(地區)申請專利	申請日期	案 號	主張專利法第一百零五條準內第二十四條第一項優先權
	-		
·	•		
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二、 □主張專利法第一百	零五條準用第二十	五條之一第一項個	優先權:
申請案號:			
日期:			
	法第九十八條第一	項□第一款但書	或□第二款但書規定之期間
日期:			
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五、創作說明 (1)

【新型所屬之技術領域】

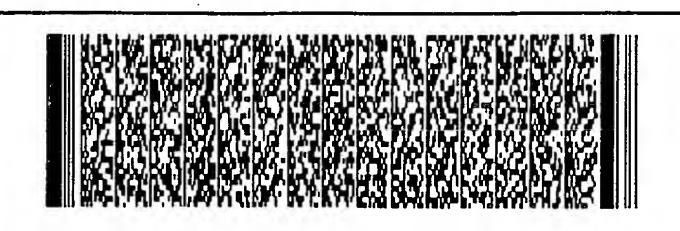
本創作係有關投影光學模組,尤其係指一種具有調整結構之投影光學模組。

【先前技術】

請參閱第1A圖所示,係習知採用連續回收技術(S C R , Sequential Color Recapture) 之投影光學系 , 其 包 括 一 光 源 1 1 、 一 反 射 罩 (Reflector) 、一積分柱(Integrated Rod) 1 3、 、照明透鏡組15、一光閥16、一投影鏡頭17及一 螢幕18;其中該色輪14係由紅(Red,R)、綠 n,G)及藍(Blue, Gree B) 濾光元件以 螺旋狀排列成一環狀者;藉由光源11提供光束經反射 罩 1 2 反射後,反射光束進入積分柱 1 3 作均匀化處理 光束通過色輪 1 4 而同時濾出呈矩形帶狀之 R 1 \ 1 4 B 色 光 1 4 2、143(如第1B 色光再經照明透鏡組15聚焦後入射於光閥16作 色彩影像處理,最後由投影鏡頭17成像於一螢幕18

然經螺旋紋色輪 1 4 後產生之呈矩形帶狀的 R、G、B色光 1 4 1、1 4 2、1 4 3, 會投射於光閥 1 6 上,因此,光閥需同時處理 R、G、B三色之電子訊號,且色光間具有相連接之區域,故需增加電子訊號之處理能力,才能使光閥 1 6 投射出清晰影像;但是,請參閱第 2 圖所示,習知投影光學系統基於光學元件定位、





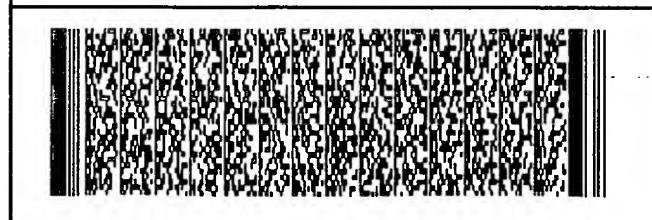
五、創作說明 (2)

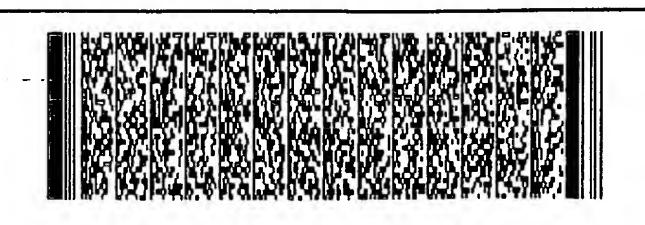
【新型內容】

本創作之一目的,係提供一種投影光學模組,藉由設置調整件,以調整投影光學模組內光學元件之相對位置。

本創作之另一目的,係提供一種投影光學模組,利用設置調整件,使通過色輪之色光可清晰投射於光閥上,而簡化電子訊號之處理,同時可避免照明亮度損失,使提昇光學效率。

為達上述目的,本創作之投影光學模組包括一前光學模組、一後光學模組及一設於前、後光學模組間之調整件;其中該前光學模組包括一光閥及一投影鏡頭,後光學模組包括一燈具組、一積分柱及一色輪,且該前光學模組與調整件相對應之一端分設有一環型溝槽及複數





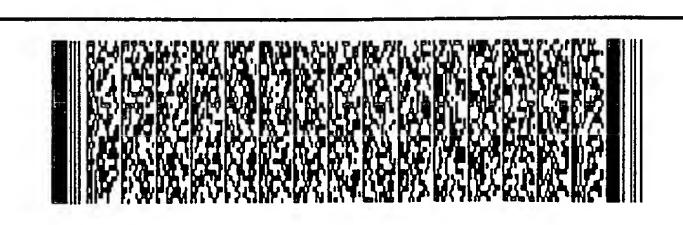
五、創作說明 (3)

[實施方式]

有關本創作為達到上述目的,所採用之技術手段及其餘功效,茲舉一較佳實施例,並配合圖式加以說明如下:

請參閱第3圖及第4圖所示,本創作投影光學模組 ① 係包括一前光學模組21 、一後光學模組23及一 由調整件22設於前光學模組21 藉 以調整前、後光學模組之相對位置。 3 問 , 由一光閥211及一投影 組合成一模組,且該模組 2 1 之尾端設有 連接段2 3之外周緣設有 3 1 之圓心係位於前 ,該環狀溝槽 2 1 之光軸上,且前光學模組2 1 4 以將前光學模組21固定於一投影





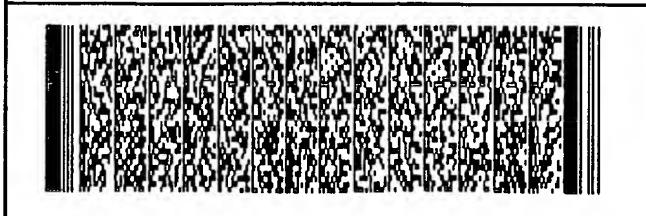
五、創作說明 (4)

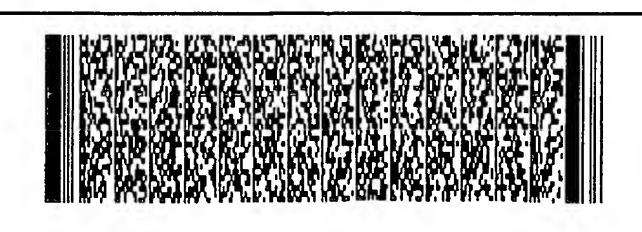
(圖未示)上。

該調整件22係具有一中空圓柱形之本體221,本體221一端外周緣設有貫穿本體221之複數個螺孔222,另一端設有內螺紋223,其軸心亦位於光軸上,藉由複數個鎖固元件224螺設於螺孔222後,一端容置於環狀溝槽2131兩人,而使調整件22個設於前光學模組21,並利用環狀溝槽2131導引而可繞著光軸自由旋轉。

後光學模組23係由燈具組231、一積分柱23 2及一色輪233組合成一模組, 且該模組23端 設有一調整段234, 該調整段234上設有與調整件 22內螺紋223相配合之外螺紋, 而使後光學模組2 3可螺設於調整件22, 且該調整段234係為中空使 色輪233之色光可投射於前光學模組21之光閥21 1上,色輪233可為具有螺旋狀、扇形或單色之尺、 G、B濾光元件者。

本創作藉由調整件22之一端樞設於前光學模組2 1,另一端螺設於後光學模組23,而組成本創作之投 2 組 勻 化處理 色光投射 成 而 像於 光閥 於 使利用 2 環狀溝 槽 引





五、創作說明 (5)

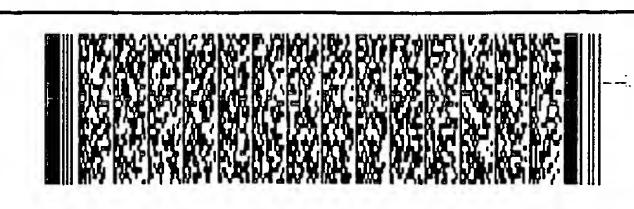
時調整件22之內螺紋223配合嚙合調整段234之外螺紋,帶動後光學模組23沿著光軸作線性移動,而調整後光學模組23與前光學模組21間之相對位置,使色光可清晰投射於光閥211上。

因此,藉由調整件22提供調整機制,可使通過色輪233之色光清晰投射於光閥211上,而減少投射於光閥211上之色光產生重疊區域,故可簡化電子訊號之處理,且不需放棄處理重疊區域之電子訊號,因此可避免照明亮度損失,而提昇光學效率。

另外,可視需調整之光學元件位置,例如燈具組2 31至光閥211之間等,將投影光學模組分成複數個模組,再藉由一或多個調整件22連結各模組並調整模組間之相對位置,達到修正光學路徑,而改善光學品質。

以上所述,僅用以方便說明本創作之較佳實施例, 本創作之範圍不限於該等較佳實施例,凡依本創作所做 的任何變更,例如:將調整件22之一端螺設於前光學 模組21,另一端樞設於後光學模組23者;於不脫離 本創作之精神下,皆屬本創作申請專利範圍。





圖式簡單說明

【圖式簡要說明】

第1 A 圖,係習知投影光學系統圖。

第1日圆,係習知投射於光閥上之矩形帶狀色帶圖。

第2圖,係習知投影光學模組之外觀圖。

第3圖,係本創作投影光學模組之組合圖。

第4圖,係本創作投影光學模組之爆炸圖。

【圖號簡要說明】

投影光學模組 20

前光學模組 2

光 閥 2 1 1

投 影 鏡 頭 2 1 2

連接段 213

環 狀 溝 槽 2 1 3 1

固定孔 214

調 整 件 2 2

本 體 2 2 1

螺孔 222

內 螺 紋 2 2 3

鎖 固 元 件 2 2 4

後光學模組 23

積分柱 232

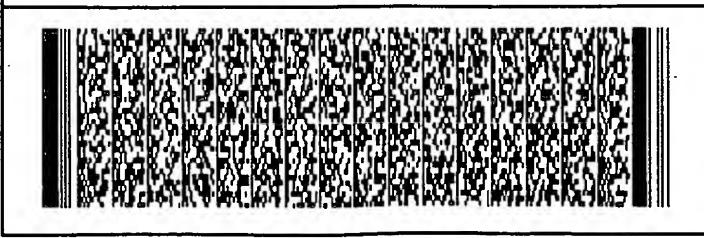
色 輪 2 3 3

調整段 234



六、申請專利範圍

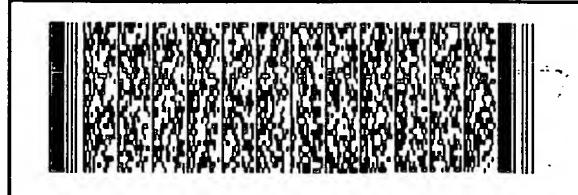
- 1、一種投影光學模組,係包括:
 - 一前光學模組;
 - 一後光學模組,係設於該前光學模組之一端;以及
 - 一調整件,係設於該前光學模組與後光學模組間,
 - 藉以調整前光學元件與後光學元件間之相對位置。
- 2、如申請專利範圍第1項所述之投影光學模組,其中該調整件其一端樞設於該前光學模組,另一端螺設於該後光學模組。
- 3、如申請專利範圍第1項所述之投影光學模組,其中該前光學模組包括一光閥及一投影鏡頭。
- 4、如申請專利範圍第1項所述之投影光學模組,其中該後光學模組包括一燈具組、一積分柱及一色輪。
- 5、如申請專利範圍第4項所述之投影光學模組,其中該色輪可為具有螺旋狀排列之紅、綠、藍濾光元件者。
- 6、如申請專利範圍第1項所述之投影光學模組,其中該前光學模組更包括一光閥;該後光學模組更包括一光閥;該後光學模組更包括一提供照明光束之燈具組,藉由該調整件調整前光學元件與後光學元件間之相對位置,而可將照明光束清晰成投射於該光閥。
- 7、如申請專利範圍第1項所述之投影光學模組,其中該調整件係為中空圓柱形者。
- 8、如申請專利範圍第1項所述之投影光學模組,其中該前光學模組與後光學模組相對應之一端可為圓筒



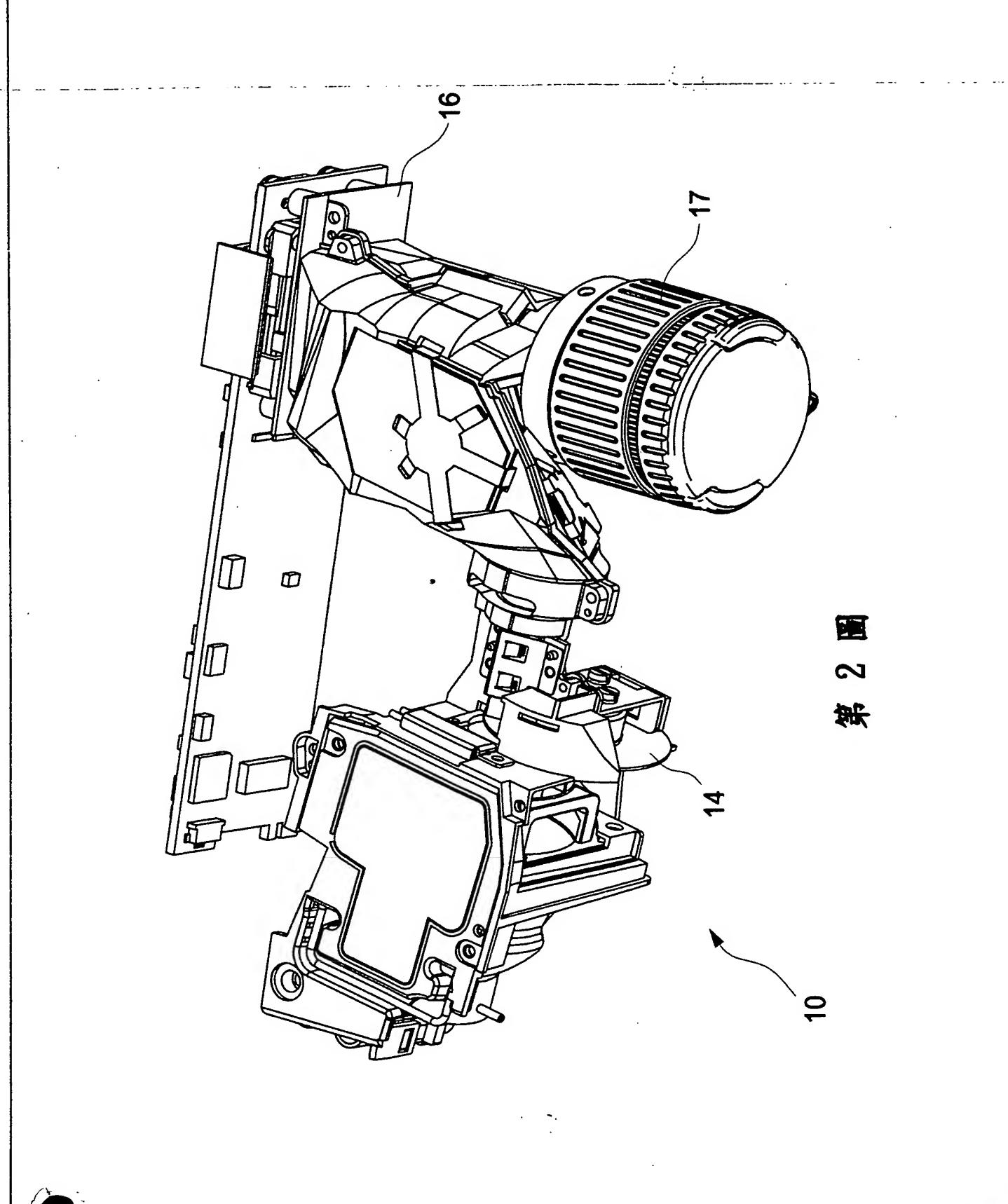
六、申請專利範圍

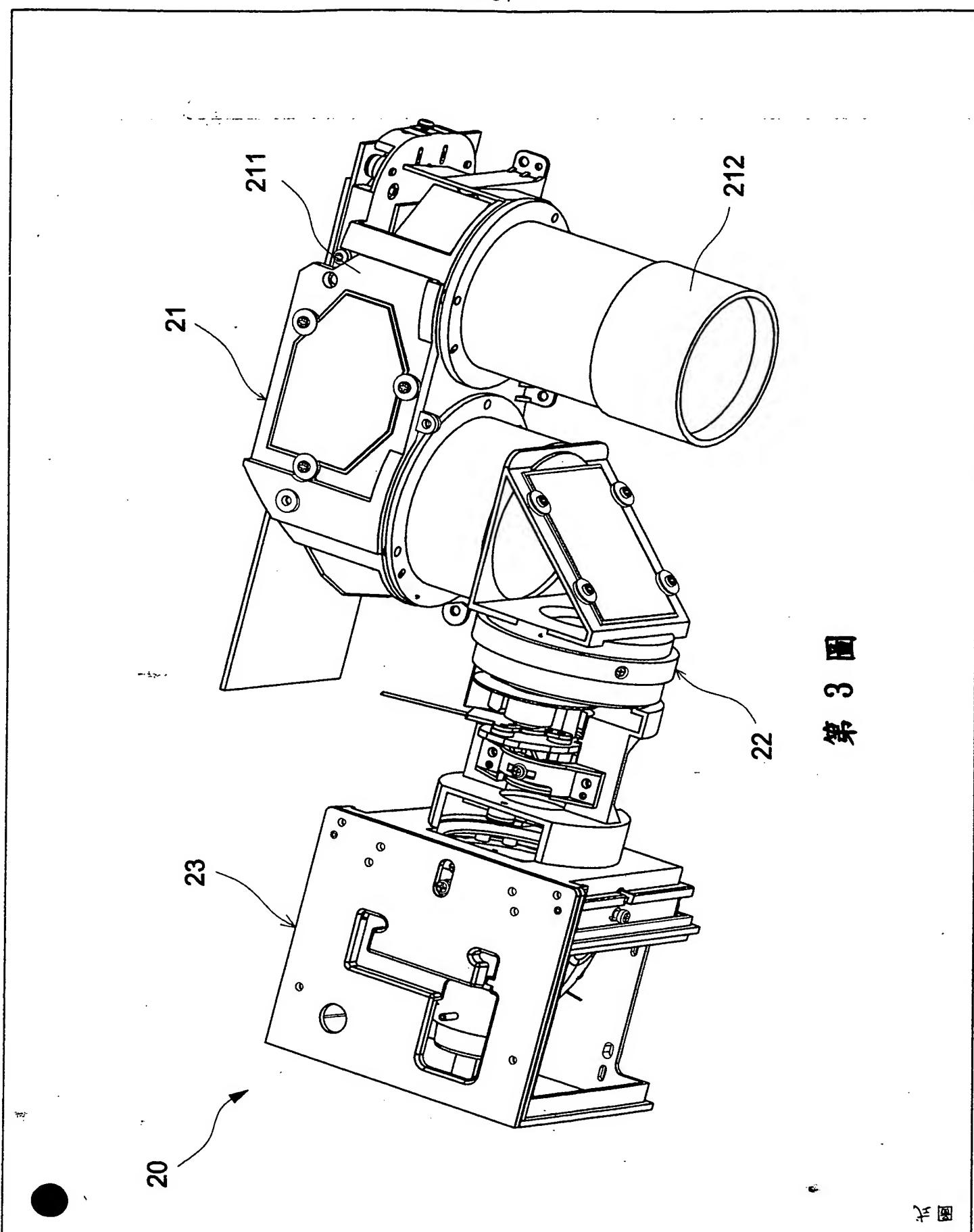
狀。

- 9、如申請專利範圍第1項所述之投影光學模組,其中該前光學模組與調整件相對應之一端分設有一環型溝槽,及複數個設於外周緣之螺孔,並設有複數個鎖固元件螺設於該螺孔,且一端容置於該環型溝槽內。
- 10、如申請專利範圍第1項所述之投影光學模組,其中該後光學模組與調整件相對應之一端分設有一外螺紋及內螺紋。

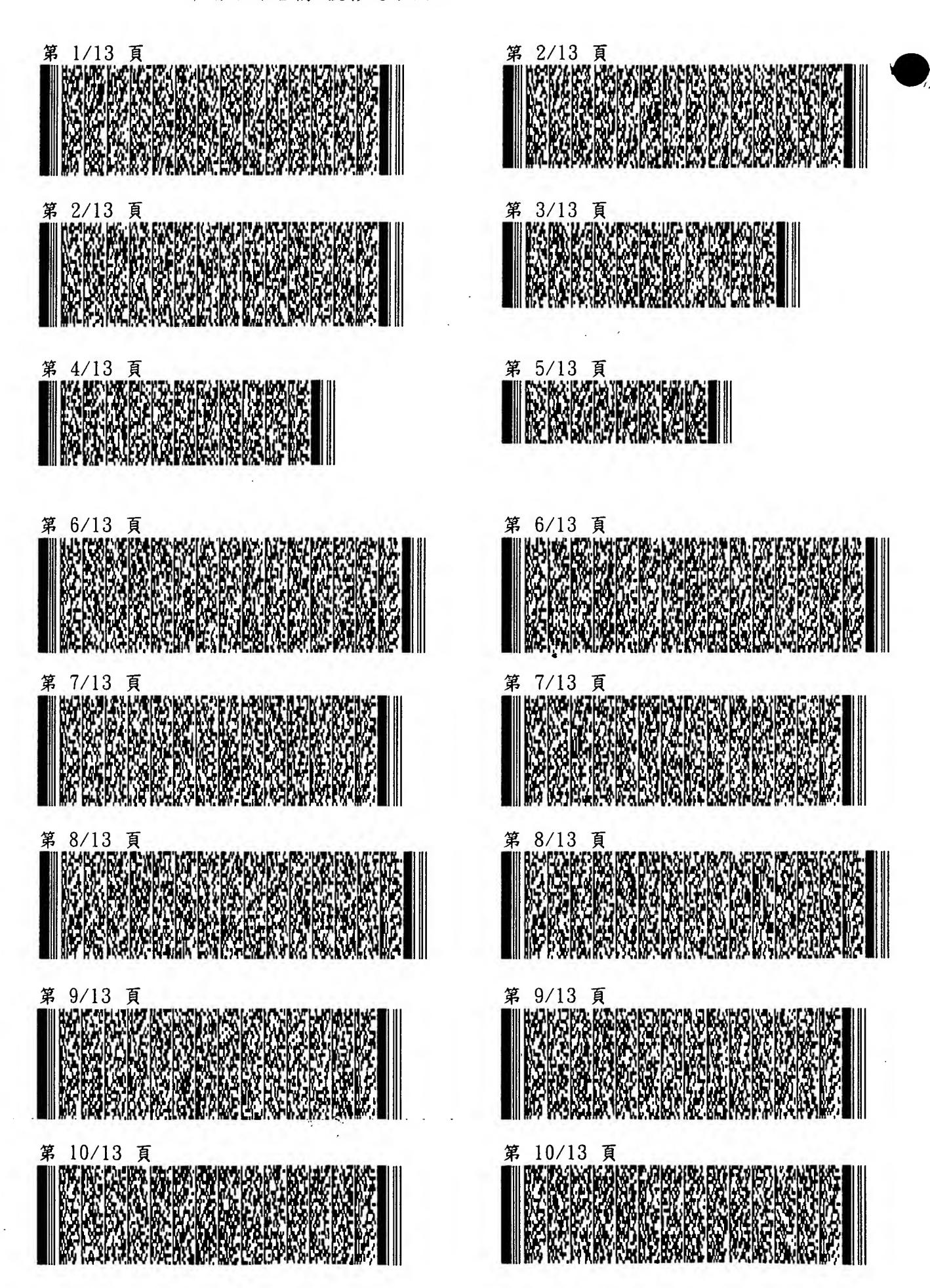


頁川第





頁门第



申請案件名稱:投影光學模組





